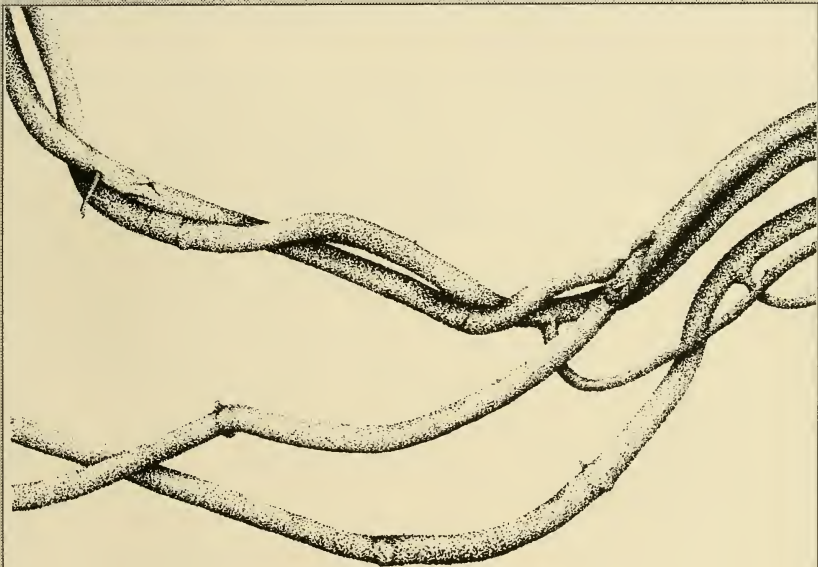




# The Plantsman

NEW HAMPSHIRE PLANT GROWERS ASSOCIATION

April & May 1993



s p r i n g

*Illustration by Rosalyn Pirozzi*

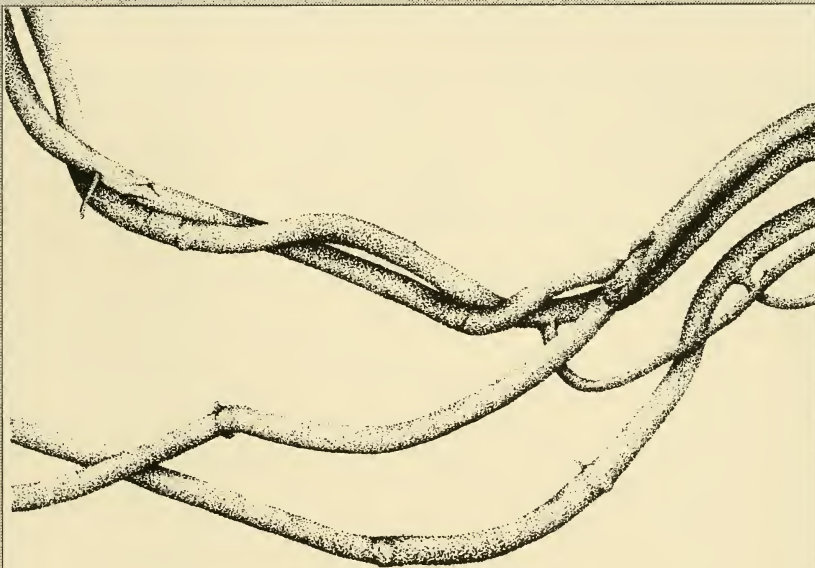




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April & May 1993



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## CALENDAR

### APRIL

**April 16 FFA Nursery/Landscape and Floriculture Contest,** Plant Biology and Thompson School Greenhouses, UNH, Durham, NH; for information: Dave Howell at (603) 862-1760.

**April 29 NHPGA Twilight Meeting,** 5:30 pm at Kathman Gardens, Newport, NH; for information: Dennis Kathman at (603) 863-1089.

**April 30 Arbor Day!**

### JUNE

**June 10 Landscape and Turf Field Day,** UMass, Amherst; for information: Kathleen Carroll at (413) 545-0895.

**June 16 NHPGA Twilight Meeting,** Michaud's Nurseries & Greenhouses, Exeter, NH; for information: (603) 772-3698.

### JULY

**July 14 Connecticut Nurserymen's Association Summer Meeting** hosted by Baker Nursery Companies, Brass Rail, Lake Congamond, MA; for information: (203) 872-2095.

### AUGUST

**August 3 Massachusetts Nurserymen's Association Summer Meeting,** (508) 534-1775.

**August 5-8 American Association of Nurserymen Convention,** Dallas, Texas; for information: (202) 789-2900.

**August 12 New England Nurseryman's Association Summer Meeting,** for information: Virginia Wood at (617) 431-1625.

**August 18 New Hampshire Plant Growers' Association Summer Meeting,** Elliott & Williams Roses, Dover,



NH; for information: Bob Demers, Jr., at (603) 625-8298.

**August 18-19 Pennsylvania Landscape and Nursery Trade Show & Conference,** ExpoMart, Monroeville, PA; for information: (717) 238-1673.

**August 26 Eighth Biennial Griffin Greenhouse and Nursery Supplies Open House,** Tewksbury, MA; for information: (508) 851-4346.

### SEPTEMBER

**September 22 NHPGA Twilight Meeting,** 5:30 pm at Carpenter's Olde English Greenhouse & Florist, Newmarket, NH; for information: Rob Carpenter at (603) 659-3391.

**September 28-30 International Conference on Thysanoptera,** University of Vermont, Burlington, VT; for information: Bruce Parker at (802) 658-4453.

### OCTOBER

**October 20 NHPGA-sponsored Pesticide Applicator Recertification Program,** place to be announced; for information: Chris Robarge at (603) 862-1074.

### NOVEMBER

**November 5-8 Association of Specialty Cut Flower Growers' Sixth National Conference,** Doubletree Hotel, Overland Park, Kansas; for information: Alan Stevens at (913) 532-5173.

### AND LOOKING AHEAD....

**January 27-29, 1994 New England Grows, Hynes Convention Center,** Boston, MA; for information: (617) 431-1622.

Drawing of *Chilocorus kuwanae* by Dr. John Weaver.  
See page 23

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*The Plantsman* is published in early February, April, June, August, October, and December with copy deadlines being the 5th of each prior month. While camera-ready ads are preferred, set-up assistance is available at a nominal fee. Free classified advertising is offered as a member service. We will carry a short message (no artwork or logos) for one or two issues of *The Plantsman*.

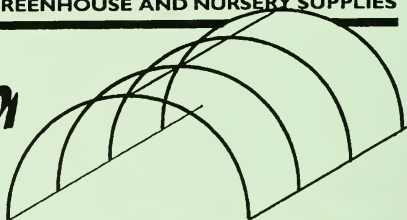
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For further information, please contact the editor: Robert Parker at the UNH Research Greenhouses, Durham, NH 03824, (603) 862-2061; or PO Box 5, Newfields, NH 03856, (603) 778-8353.

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## FROM THE BOARD

Not a day goes by where you don't hear about increases—whether it's taxes or the prices of products you use every day.

I know the last person you want to hear talk about increases is the president of a non-profit organization—but here I am.

At our Winter Meeting in January, the Board and the membership voted to raise the dues. The reason we did this—and I hope you'll think it's a good one—is that we want to do more for our members.

For the last couple years we've had successful summer meetings. These were designed so that New Hampshire people could meet sales people in a relaxed atmosphere.

You can actually see the person you've been placing orders with on the phone all spring. And it's a great way to meet other New Hampshire people as well as getting to see the host's operation. At every summer meeting we hold an auction to raise scholarship money. Last year we raised \$1500—we keep none of it—it all goes directly

## My Two Cents

Bob Demers

to the students.

Another thing we're doing is holding twilight meetings. We have four or five a year. These give you a chance to tour other operations and see how other people do things. These are usually held late in the day so they won't interrupt your own day too much. The meetings are free, but it costs us to advertise them.

I realize our Winter Meeting needs help, but that is something we're working on. With the money from the increased membership dues, we can find the speakers you'll want to hear that were once out of our price range.

We had a pesticide recertification meeting last year that was free to members. We're planning another for this October. It's nice to pay for your membership, but it's another thing to pay again for its

benefits and seminars.

There are other things in the works right now (the people who returned the questionnaire had some good suggestions), and these will be announced when they get further along.

Incidentally, in case you're wondering, the President and Board of Directors do not receive a fee for serving. The hard-working men and women who work with me do it out of the goodness of their hearts. We do it to help you—the member—make your life in the green industry a little easier, more enjoyable, and more profitable.

I hope you have a good spring and if you see me at a meeting, don't hesitate to give me your ideas, but—most of all—your two cents. I'm always willing to listen. ✻

*Bob Demers, Jr. along with other members of his family, owns and operates Demers Garden Center, 656 South Mammoth Road, Manchester, NH. He can be reached at (603) 625-8298.*



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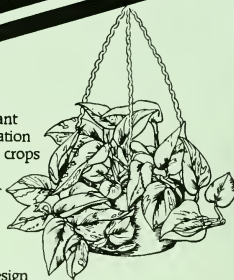


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# OUR MEMBERS SPEAK— The Results of the NHPGA Membership Survey

"Do we grow plants or old men?" one member wrote alongside his vote to change our logo. But the intensity of six wasn't enough to challenge the general fondness for our familiar design.

This is one fact revealed in the results of the survey sent out with the 1993 membership forms.

Only thirty members filled out the form. But these thirty had enough ideas to keep the Board thinking for quite awhile. Below are some highlights.

The biggest problem facing New Hampshire horticulture was felt to be regulations in some form or other: pesticide, environmental, municipal, DOT...everyone had their favorites. The problem wasn't necessarily the regulations themselves, but that they were too complicated and change so often. As one member put it, it's "the lack of direction from the regulators themselves. What are we to plan for the next year, the next five years, in terms of rules and regulations?"

The second problem mentioned most frequently was "the influx of warehouse-type retailers." The "dumping of inferior plants at unrealistic prices," concern with volume rather than customer satisfaction—members saw mass-marketers and their techniques as real threats to small growers and garden centers.

There seemed to be no strong third theme—just lots of individual concerns—everything from supply costs to plastic disposal to "remembering that consumers are ready for new products and ideas."

What members seemed to want most from the NHPGA was more information—they asked for "more regular and informative seminars," more technical information (on all sorts of subjects), and more on marketing and marketing trends. They asked for grower-to-grower

(dividing growers into smaller groups according to their interests) sessions at our summer and winter meetings and strong keynote speakers.

They asked for information about upcoming laws and suggested that the NHPGA lobby the state legislature. And that we "need to communicate more with other organizations—FB or ANN or NENA—so we can react better to legislative changes and additions."

There were plenty of ideas for *The Plantsman*—more information on "new varieties and cultivars," "trends," and "alternate ways of doing things;" also "more information for landscapers." "How-to sections, handy hints, ideas from members, ideas on crop culture..." were requested. One member wanted "more seed company ads and a mailing card that you could send to get more information;" another suggested beginning a "stock exchange" (plant stock) by expanding on the classified ad section. These are a just a few of the many good suggestions.

The Board thanks everyone who took the time to respond. It is hoped that members' concerns will define the activities of the organization.

## Thanks Go To....

Thanks go to the various businesses and people who helped with the NHPGA display at this year's Farm & Forest Exposition. These include Chris Robarge and Bob Demers, Jr., who set up and took down the exhibit; Demers Garden Center and Paul Godbout (Jacques' Flower Shop), who furnished the plant material; and Dick Zoerb and Roger Warren, who helped man the booth. ❧

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## Meetings Past....

## Winter Meeting.

In spite of overwrought weather forecasts and some early morning squalls, over 50 people attended The New Hampshire Plant Growers' Association Winter Meeting at the Granite Street Bar & Grill on January 13.

At the annual business meeting, reports were presented, officers elected, and new business attended to (dues were raised to \$35.00 a year, beginning in 1994).

Although the theme of the day was "Color in the Garden," some black-and-white topics were presented as well. Tina Sawtelle (Sawtelle Marketing Associates) began the program by discussing designing a logo that works and—if you have a logo you like, how to use it effectively. And just before lunch, Bill Martin (Southern NE Farm Credit) gave procedures for a "fifteen-minute grower's analysis"—a number of ways to use the figures in your financial records to interpret the health of your business. But in between, there was lots of color in Mike Murgiano's (Sluis & Groot) presentation of new and colorful annuals—new trends and customers' favorites.

At lunch, after UNH Plant Biology Chairman Curt Givan thanked the Plant Growers for their continued generosity to horticulture students at UNH, Bob Demers, Jr., presented this year's NHPGA scholarships to Madeleine Duhamel (Thompson School) and Jobria Anderson (Plant Biology).

In the afternoon, Dick Zoerb (Fred C. Gloeckner Co., Inc.) gave a tour of the colorful—although rainy—Ameriflora Exhibition in Columbus, Ohio, and Peter van Berkum (van Berkum Nursery) gave another colorful tour—this one of perennials—focusing on less-used varieties that grow well in New Hampshire's climate and soils.

For members wanting still more color, Wayne Winterrowd (North Hill Garden Design Associates, Readsboro, VT) spoke to the NHLA

that evening in the same room and NHPGA members were invited to attend.

Thank you, all speakers and organizers. It was a full day. With lots of color.

Twilight Meeting—  
Pleasant View Gardens.

The following week, on Thursday, January 21, Pleasant View Gardens, Pittsfield, invited members to tour their recently-built 25,000 square-foot Nexus gutter-connected house. Over 50 people came to see the environmentally computer-controlled house already filled with its first crop of Fischer geraniums.

The Huntingtons were pleased with the response and thank everyone for coming.

## ...and Meetings Future

## Summer Meeting.

The New Hampshire Plant Growers' Association will hold their 1993 Summer Meeting at Elliott and Williams Roses, Inc., in Dover, New Hampshire on August 18. The meeting will be lighter, more social, a place where you can bring the family.

The tentative schedule includes tours, a featured speaker, and a strong trade show in the morning, and in the afternoon, lunch, the auction, and an opportunity to visit some of the highlights—gardening and otherwise—of the seacoast. The Board will give members a list of the best, along with a map. The rest of the day—and evening—is yours.

The traditional tailgate trade show and scholarship auction are expected to be "bigger and better than ever." Peter Calliolas of The Auction Professionals, Inc., will again be the auctioneer, so the auction should not only raise scholarship funds, but be great entertainment as well.

Perillo's will cater the lunch—barbecued chicken, hot dogs, hamburgers, hot sausage grinders, potato salad, corn-on-the-cob, potato chips and all the fixings and water-

melon for dessert. (The price is \$6.50 for children 12 and under.)

Pre-registration will be \$25; registration at the door is \$30.

More information will be in the June/July issue.

New Products—  
New Hampshire

Pleasant View Gardens, Pittsfield, NH, has joined with EuroAmerican Propagators (Encinitas, CA), Four Star Greenhouses (Carleton, MI), Kientzler Young Plants (Gensingen, Germany), and Weidners (also of Encinitas, CA), and other growers from Europe, Australia, and Japan to form 'Proven Winners.' "The Proven Winners for 1993 will be introducing outstanding new varieties to the USA that are already popular and proven in Europe.

These include:

*Brachycome* 'Ultra.' Compact, easy to grow, with tight foliage and large, deep-blue, numerous flowers. (3-4 cuttings per basket, 10-14 weeks to finish.)  
*Dianthus caryophyllus* 'Sweetheart Cascade.' (the German name: 'Tiroler Gebirgshangnelke.') An improved basket carnation similar to 'Flame,' producing numerous deep-red fragrant blooms on both upright and trailing stems 9-12 inches long. (3-4 cuttings per 10 inch basket; 13-16 weeks to finish.)  
*Helichrysum bracteatum* 'Golden Beauty.' Compact and trailing, it is a perennial 'strawflower,' with golden-yellow blossoms with glossy petals coarse to the touch and soft velvety centers. A good plant for warm sunny areas, under the right conditions, it can flower year-round. (3-4 cuttings per 10 inch basket, 10-14 weeks to finish.)

*Scaevola* 'Blue Wonder.' A profuse bloomer and heat tolerant, while not new to the trade, it's part of the new Proven Winners line. (3 to 4 cuttings per 10-inch basket, 10-14 weeks to finish.)

For information, contact Henry Huntington at (603) 435-8361.

## Symbol Moves Toward Approval

The Boards of both the New Hampshire Plant Growers' Association and the New Hampshire Landscape Association have seen and approved the proposed symbol to be used on an official state directional sign for nurseries, greenhouses and garden centers.

Both organizations have sent letters endorsing the symbol to Dave Seavey, Extension Educator, Merrimack County. Dave will forward these letters, along with all the necessary information, to the State Department of Transportation.

The symbol can be approved at that level. There is no need for its approval by the legislature.

## Changes....

More than rumor, but not yet fact, rule changes may be coming to New Hampshire's Pesticide Applicator Recertification Program. Proposals currently being discussed by the NH Pesticide Board include eliminating credit classification: in other words, there would be no core credits and credits in any area—small fruits, nursery, whatever—could be used toward recertification. But 15 credits—rather than the current 12—would be required. Other changes include cutting approval time for recertification lectures from the present 45 days to 30. Also, the Division of Pesticide Control would keep track of credits (you would send slips verifying attendance to them once a year along with your yearly renewal application).

There may be a public hearing this May; any changes wouldn't take place until 1994.

## New NHLA Officers

The New Hampshire Landscape Association elected their 1993 officers and board at their January 13 meeting. These are: President: Chuck Simpson (Simpson Landscaping Co., Dublin, NH); Vice-President: Ed Hopkins (A Tree Health Co., Inc., DBA Urban Tree Service, Rochester, NH); Secretary/Treasurer:

Rick Martineau (Dover, NH); Director/Past President: Dave Alessandrini (Carroll County Landscape, Wolfboro, NH); and Directors: Elizabeth Boot (Londonderry, NH); Herb Rice (Gilmanton Iron Works, NH); and Chris Beasley (Tuckahoe Turf, Canton, MA). Guy Hodgdon (Eliot, ME) and Carolyn Meehan (Meehan Design, Westmoreland, NH) continue as Business Manager and Newsletter Editor, respectively.

The NHLA business office number is 1-800-639-5601.

## Farm & Forest—A Successful Tenth

In spite of the cold, The Tenth Annual Farm & Forest Exposition held in Manchester on February 4-6 was a success. Attendance in general was down, but the meetings—of Fruit Growers, Beef Producers, Deer Farmers, Organic Farmers, Small Fruits and Vegetable Growers, the NH Horse Council—were all well attended. Over 80 businesses and organizations exhibited. And this year's auction was "a huge success."

Governor Merrill attended Friday's Awards Breakfast, then stayed afterwards to chat awhile with the people there.

Awards given at the breakfast included the Andrew L. Felker Award (for promotion and development of NH agriculture), given to David and Edwina Morrill of Penacook; the Fred E. Beane Award (for agricultural reporting), to Al Nettel of the *Union Leader*; The New Hampshire Master Shepherd Award, to Dick and Betty Persons of Ramblin Vewee Farm, Gilford, and their shepherd, Jeff Keyser; the New Hampshire Tree Farmer of the Year Award, to Raymond Glinnes of Canterbury; and the New Hampshire Wildlife Stewardship Award, given to John Wolter of East Haverill.

Congratulations. Now—on to Number Eleven.

## Fact Sheet Available

*Low Maintenance Turfgrass for Landscapes and Commercial Agriculture*, a five-page fact sheet written by David Seavey, UNH, Merrimack County Extension Educator, Agricultural Resources, and John Roberts, UNH Extension Specialist, Turf, is now available.

Feeling that, although turfgrasses provide many economic and environmental benefits, their maintenance costs can be relatively high, UNH Cooperative Extension planted and evaluated several turfgrass varieties in recreational, landscape, and farm settings. They chose types that perform well with less water, fertilizer, mowing, and pesticides.

John and Dave wrote about their research in progress in an article in the December 1991/January 1992 *The Plantsman*. This new fact sheet gives some of their conclusions in the form of practical information for people who want to grow these grasses on parking lots, for example, or as a way to control insects near greenhouses.

Those interested in obtaining a copy should contact their county Extension office.

## In the Legislature

Two bills of interest are:

**House Bill 119-FN-LOCAL**, introduced by Rep. M. Campbell of Rock 26. "This bill gives exclusive authority over the use, regulation, sale, or transportation of pesticides to the Division of Pesticide Control, Department of Agriculture." It has been "re-referred to subcommittee."

**House Bill No. 252-FN-LOCAL**, introduced by Rep. Teschner of Graf 4; Rep. Ham of Graf 4; Sen. Cohen of Dist 24. "This bill allows the wetlands board to adopt rules to expedite the permitting process for minimum impact projects in forestry, agriculture, and recreation and town road maintenance. An expedited permit would not be available for subdivisions, commercial development, or new road construction." This passed the house on February 23. ♦



*Pages 20-31. . .*  
*Perennial*  
*Information*  
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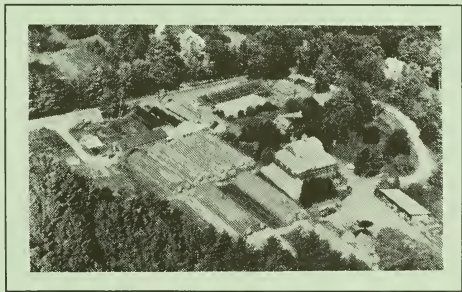


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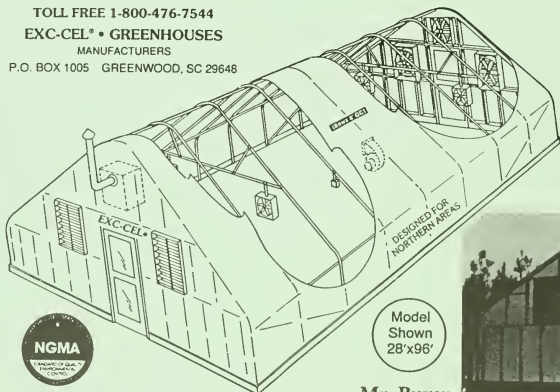
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- 1 heater hanger bracket
- 2 18" Circulation Fans
- 2 36" exhaust fans & shutters
- 2 42" exhaust shutters & elec. mts.
- 2 thermostats
- 2 6 mil poly film layers, top
- 2 6 mil poly film layers, ends
- 1 inflation blower
- 1 hardware assembly kit
- 500' batten tack tape

\$3995.00

### 28' x 72'

- 19 1 1/8" galvanized steel bows
- 216' 1 3/8" galvanized steel purlins
- 38 side purlin holders
- 19 top purlin holders
- 38 2" x 24" anchor stakes
- 5 cross truss braces
- 4 corner wind braces
- 1 150,000 BTU gas heater (LP)
- 1 heater hanger bracket
- 4 18" Circulation Fans
- 2 36" exhaust fans & shutters
- 2 42" exhaust shutters & elec. mts.
- 2 thermostats
- 2 6 mil poly film layers, top
- 2 6 mil poly film layers, ends
- 1 inflation blower
- 1 hardware assembly kit
- 500' batten tack tape

\$4995.00

### 28' x 96'

- 25 1 1/8" galvanized steel bows
- 300' 1 3/8" galvanized steel purlins
- 50 side purlin holders
- 25 top purlin holders
- 50 2" x 24" anchor stakes
- 11 cross truss braces
- 4 corner wind braces
- 1 200,000 BTU gas heater (LP)
- 1 heater hanger bracket
- 4 18" Circulation Fans
- 3 36" exhaust fans & shutters
- 2 42" exhaust shutters & elec. mts.
- 2 thermostats
- 2 6 mil poly film layers, top
- 2 6 mil poly film layers, ends
- 1 inflation blower
- 1 hardware assembly kit
- 500' batten tack tape

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- 26 2" x 24" anchor stakes
- 4 corner wind braces
- 1 hardware assembly kit

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### 28' x 72'

- 19 1 1/8" galvanized steel bows
- 216' 1 3/8" steel purlins
- 38 side purlin holders
- 19 top purlin holders
- 38 2" x 24" anchor stakes
- 4 corner wind braces
- 1 hardware assembly kit

\$1495.00

### 28' x 96'

- 25 1 1/8" galvanized steel bows
- 300' 1 3/8" steel purlins
- 50 side purlin holders
- 25 top purlin holders
- 50 2" x 24" anchor stakes
- 4 corner wind braces
- 1 hardware assembly kit

\$1595.00



# Projects Funded

Sixteen proposed funding projects were presented to the 1993 New England Greenhouse Conference Committee. Of those, seven were awarded full funding and four, partial. A total of \$15,391.10 was given.

Projects receiving money are: "Biological Control of WF Thrips, Using a Phytoseiid Mite and a Predaceous Bug," proposed by P. Stack and F. Drummond, University of Maine (full funding of \$2000); "High Tunnel Outdoor Cut Flower Production," proposed by C. Williams, University of New Hampshire (full funding of

\$1891.10); The 1993 International Conference on *Thysanoptera*, proposed by B. Parker, University of Vermont (partial funding of \$500); Career Brochure and Related Materials, proposed by D. Pellet, Vermont Plantsmen's Association (partial funding of \$1000); "Herbaceous Perennial Research," proposed by L. Perry, UVM (partial funding of \$1500); "Professional Horticulture Garden Center Training," L. Perry, at UVM, UNH, U Maine (partial funding of \$1000); "Nutrition of Subirrigated New Guinea Impatiens," proposed by D. Cox, University of Massachusetts (full funding of \$1500); Computer Hardware and Software, proposed by P. Konjoian, Konjoian's Greenhouse, MA (full funding of \$2000); "Effects of Nitrogen Source and pH on *Fusarium* Wilt of Basil," proposed by R. Wick, UMass (full funding of \$2000); "Cut Flower Production of Field-Grown Herbaceous Perennials," proposed by M. Bridgen, University of Connecticut (full funding of \$2000); and "pH Adjustment in Soil-less Media," proposed by G. Eliot, UConn (full funding of \$2000).

Congratulations to the recipients and thanks to the New England Greenhouse Conference for its generous support of the New England greenhouse industry.

## Griffin Grows...

On February 23, Griffin Greenhouse and Nursery Supplies announced the opening of two new locations in Maine and Connecticut.

"In Maine, a merger with the greenhouse and nursery supply division of DownEast Supplies created the new facility in Portland. In Connecticut, the new warehouse and office in Wallingford is at the previous site of Slater Supply Co., which closed its doors in Connecticut earlier this year."

These additions will enable Griffin to make weekly deliveries throughout Maine and Connecticut; "New staff members add their expertise and help spread Griffin's full network of educational information and services further than they have ever reached before."

We wish Griffin success in their

new and expanded enterprise.

## ...and Griffin Parties

Along with this, Griffin also announces its Seventh Biennial Open House, to be held on Thursday, August 26, at 1619 Main Street, Tewksbury, MA.

The over sixty-five exhibitors will include representatives from such firms as X.S. Smith, Nexus, Acme, Dillen, and Grace/Sierra. The program of speakers will be designed to give pesticide credits as well as plenty of useful information. (Speakers have yet to be announced.) Lunch and refreshments are being provided by Griffin.

The event will be held nine to four, rain or shine. For information, call (508) 851-4346.

## More Mergers

On February 1, 1993, Commerce Distributors, Inc., Linthicum, MD, and Darbco, Inc., Providence, RI, announced their merger, "which will enable us to better serve our customers in the Mid-Atlantic and Northeast." Darbco will continue business operations under the name Commerce Distributors, Inc. t/a Darbco. All future shipments to Darbco will be sent to their new facility at 25 Almeida Avenue, East Providence, RI 02914.

All accounting functions will be handled by Commerce Distributors, Inc., 700 Evelyn Avenue, Linthicum, MD 21090.

And on February 9, biosys, of Palo Alto, California, announced the signing of a letter of intent to purchase Agrisense, based in Fresno. Agrisense was formed in 1988 as a joint venture between subsidiaries of Phillips Petroleum (Provesta Corporation) and Dow Corning to commercialize insect detection, monitoring traps, and other biological control technologies. These include Phillips' pheromone synthesis technology, which disrupts the mating behavior of insect pests, and Dow's mi-



## TIPS

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Just recently, an informative article in *Yankee* Magazine talked about trial gardens right here in New England. A Boston newspaper published a story about the product of a local grower being named for the President's wife and another about a local rose grower being hurt by imports. And on TV—the same story from yet another rose grower and a special from a noted host of a cooking show who was shopping at a local farm stand.

Did you ever think that you might have a story about your crops or products that would interest the local media? Call 'em up, invite 'em down, show 'em around, give 'em a plant—then sit back and wait.



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cro encapsulation/ slow release technology developed for pheromone trap and lure applications. biosys is a developer of biological pesticide products.

The acquisition was expected to be completed by mid-March and includes the Agrisense European subsidiary, Biological Control Systems.

### Seedless Cucumber Resists Powdery Mildew

(from Greenhouse Manager, February, 1993)

Leen de Mos B.V. in Gravenzande, the Netherlands, has developed a powdery mildew-tolerant greenhouse cucumber suitable for early cropping under low-light conditions without suffering necrosis or diminished production.

Marketed as 'Flamingo,' the F-1 hybrid seedless cucumber is a strong grower, producing an early yield and a continuous crop. The fruits have a long shelf life.

For more: Leen de Mos B.V., PO Box 54, 2690 ABS, Gravenzande, the Netherlands; (31) 1748-

### Thrips Research at UVM

(from GrowerTalks, March 1993)

As University of Vermont entomologists searched for methods to control the pear thrips decimating New England's maple sugar groves in the late 1980s, they unearthed some possibilities on the forest floor. Soil underneath the maple trees contained pink thrips larvae as well as white thrips mummies, suggesting fungal parasitism. Entomologists Bruce Parker and Margaret Skinner isolated the causal fungus and had it identified as *Verticillium lecanii*—a fungus which has been marketed in Europe as a whitefly and aphid control and which also infects thrips.

Bruce, Margaret, and insect pathologist Michael Brownbridge are now testing *Verticillium lecanii* and three other fungal isolates from the forest floor as potential controls for

three greenhouse pests: western flower thrips, sweet potato white fly, and green peach aphid. Their work is partially funded by the American Floral Endowment, Ohio Florists Foundation, and the U.S. Department of Agriculture.

Testing involves raising the pests in even-aged populations on bean leaves. (A standard age is important in determining life stage susceptibility.) Michael is producing the fungal inoculants on artificial media, screening them to identify effective strains and exposing the insects to different concentrations. He's also testing fungal longevity in different potting soils.

The University of Vermont in Burlington is also the site of the International Conference on *Thysanoptera*, September 28-30. Sessions will focus on the biology, distribution, population dynamics, ecology, and management of thrips. For more information, contact Bruce Parker at (802) 658-4453. \*

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	2-0	3-6"	.24	.17	.12
EASTERN WHITE PINE	2-2	9-15"	1.20	.84	.60
	3-0	9-15"	.40	.28	.20
MUGHO PINE ( <i>Pumilio</i> )	2-3	5-8"	1.30	.91	.65
	2-2	3-6"	1.20	.84	.60
	3-0	3-6"	.34	.24	.17
RED PINE	2-2	9-15"	1.10	.77	.55
CONCOLOR FIR	2-2	9-15"	2.10	1.45	1.05
	2-2	6-12"	2.00	1.40	1.00
FRASER FIR	3-2	9-15"	1.20	.84	.60
	3-0	6-10"	.40	.28	.20
BLACK HILLS SPRUCE	2-2	6-12"	1.20	.84	.60
	3-0	6-12"	.40	.28	.20
BLACK SPRUCE	3-0	12-18"	.20	.14	.10
COLORADO BLUE SPRUCE	2-2	9-15"	1.30	.91	.65
	2-0	6-9"	.24	.17	.12
NORWAY SPRUCE	2-2	12-18"	1.16	.81	.58
	2-0	6-12"	.24	.17	.12
WHITE SPRUCE	2-2	12-18"	1.16	.81	.58
	3-0	12-18"	.40	.28	.20
	2-0	6-9"	.24	.17	.12
AMERICAN ARBORVITAE	2-2	9-15"	1.20	.84	.60
	3-0	6-9"	.34	.24	.17
CANADIAN HEMLOCK	2-2	9-15"	1.40	.98	.70
JAPANESE LARCH	2-0	9-15"	.28	.20	.14

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Minimum Order: 2 trays (2 of same variety)

SPECIES	AGE	SIZE	2-6 TRAYS	8 TRAYS & UP
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EASTERN WHITE PINE	P2	4-7"	.57	.37
JAPANESE BLACK PINE	P2	4-8"	.57	.37
MUGHO PINE - <i>Pumilio</i>	P2	3-5"	.57	.37
FRASER FIR	P2	4-7"	.57	.37
COLORADO BLUE SPRUCE	P2	4-7"	.55	.35
BLACK HILLS SPRUCE	P2	5-10"	.57	.37
NORWAY SPRUCE	P2	5-10"	.57	.35
WHITE SPRUCE	P2	5-10"	.57	.37
SERBIAN SPRUCE	P2	5-10"	.57	.37
CANADIAN HEMLOCK	P2	3-7"	.57	.37

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# Variegated Plants

*When the flowers are gone—the display of leaf color remains...*

W.S. Pike

Variegated plants are those which have either definite patterns of cream or white in their leaves and those which display irregular splashes. The lack of chlorophyll in areas of the leaf is what the eye sees as the color—when actually the white is a lack of color.

International culture of variegated plants is somewhat recent in horticulture. Not that they have ever been absent, but nurserymen discovering a variegated "sport" would promptly pinch it off to be discarded in the compost bin, considering it as weak plant tissue. The feeling that it is weak tissue is still a true fact. Less chlorophyll in the leaf surface means less food production for the welfare of the entire plant—no good engineering for the survival of the species.

Variegated "sports" found on an otherwise solid green plant are at a disadvantage. Slower growing, they can soon be "shadowed" by the faster growing solid leaves, giving the less light to grow by. Unchecked, many of these "sports" would soon die out. Because a market has been created for "new" plants, the variegated "sports" are removed from the parent plant, rooted, and grow to be an entirely variegated specimen.

Variations can be a result of genetic structure, or the harboring of a "friendly" virus in the one little area of the plant—the "sport"—that causes the lack of chlorophyll. When these are found, they are selected for propagation. The cutting is usually taken above the first set of patterned leaves, thus trying to eliminate any solid ones. This is especially true in perennials that die back to the roots in winter. If rooted in the solid green area, the chance of variegated foliage returning in the spring is next to nothing.

With all variegated plants, care must be given to examine them every once in a while. These plants are not really "normal" and solid green shoots may appear, which are by nature much stronger and faster growing and can soon overtake the slower, weaker variegated growth. Thus, pruning is essential if the leave do revert.

Temperature or sun intensity can regulate the color degree in some varieties of variegated plants, showing patterns only in the cooler weather of spring and fall. Being sensitive to the extreme heat of summer, the varieties turn solid green, and blend in with every other plant in the garden. In the cooler fall, the color returns.

Variegated plant can be displayed as focal specimens—a clump in the center of many different varieties of solid green plants creates a visual point. When the sun light is shining on the white or cream leaves, it acts like a spotlight reflecting on the color—your eye is naturally drawn to this center point.

Small clumps are not the only way to display variegated plants. Many forms of ground cover with 'colored' leaves can be easily grown, creating a spectacular effect. Species can be

found for either full light, deep shade, or both. Hardy ivies are one example. Propagated with ease they spread rapidly and give a wonderful display in almost any location. Variegated pachysandra, an ideal ground cover for partial shade, keeps its leaves all year long. More interesting to the eye than the usual waxy green-variety, this is an excellent choice for area where grass tends not to grow well, or on an embankment that is too steep to mow. These ground covers and many more can be found at very reasonable prices in almost every nursery-catalogue.

Several specialty greenhouses in the country deal almost entirely in variegated varieties of plants. One of which is Glasshouse Works, located on Church St. in Stewart, Ohio 45778. Almost every form of tropical, herbal, and perennial plant can be found there in its variegated form—if it can be found at all. The owners there are very knowledgeable and helpful in aiding the customer with proper selection and culture of their thousands of varieties—every one with its proper botanical name.

Remembering that variegated leaves are weaker than their corresponding solid ones, some varieties must be grown in brighter light to maintain strong growth, while other varieties need more shade than their solid green counterpart to prevent the sun from burning the white or cream areas. An example is the variegated strawberry (*Fragaria vesca*). Preferring slight shade during the heat of July and August, the healthiest plants (which spread by runners) can be found in the shadows of taller shrubs during those months.

Species like the variegated forsythia (*Forsythia intermedia* 'Spring Glory') or butterfly bush (*Buddleia davidii* varieg.) show their most vigorous growth performance in full southern exposure. If planted in heavy shade, the variegated foliage will be pale and spindly.

The most useful purpose of variegated plants is that they make spectacular showings for the entire season. Common shrubs like the butterfly bush and forsythia, that have beautiful but all-too-brief displays of flowers; or the non-descript-flowering, fast-growing "Memorial Rose" (*Rosa wichuraiana*), when in its non-colored leaf form is descriptively a weed, can be highly utilized in landscaping for continual garden color.

Should you be ever so fortunate to find a variegated "sport" on an otherwise solid green plant, think twice about what could be "a new introduction". ♦

*Wilson Pike gardens in Durham, NH and is partial to plants with variegated foliage. For particulars, call him at (603) 659-3597.*



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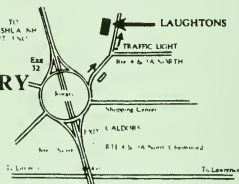
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# Integrated Pest Management

## POTENTIAL FOR GREENHOUSE PRODUCTION

GAIL D. MCWILLIAM

The concept of dealing with pests has changed over the years. Today we more commonly manage pests at tolerable levels, rather than eradicate them. This concept is called Integrated Pest Management, or IPM.

IPM, as the name implies, is a system of managing pests with a variety of different methods including cultural, biological and chemical. The emphasis is on procedures that are environmentally compatible, economically feasible and socially acceptable.

The components of an IPM system can be grouped into four major steps:

### 1) Prevent pest build up.

Practices are implemented before a full-blown pest problem develops. Once pest populations explode, they are very difficult to control, even with chemical pesticides.

### 2) Monitor pests.

Monitoring means regular checking and early detection of pests and determining if any natural controls (insect predators, etc.) are present.

### 3) Assess pest situation.

Determine the potential for pest populations to reach intolerable levels.

### 4) Determine best action to take.

Decide what, if any, is the best course of action in this situation. Chemicals are always a last resort.

In New Hampshire, IPM practices have been used historically and most successfully in apple production. New Hampshire apple growers have been able to dramatically reduce pesticide use in their orchards over the last 15 to 20 years, while maintaining quality product.

This success has led to research in IPM methods for other areas of crop production. A New Hampshire Extension IPM team has recently been established to coordinate IPM research projects in other crop commodity areas. The team has identified a number of potential projects, including some involving greenhouse production. If funding for IPM projects is approved, pilot projects may be implemented by the team

this year. Major areas of interest are whitefly and disease management in poinsettia production. An initial project may focus on this topic. Stay tuned!

IPM has been a key interest of a number of greenhouse operators, but concern about risks to a high value crop has

prevented many from adopting these practices. A recent IPM demonstration conducted by UNH Cooperative Extension, Merrimack County, focused on whitefly management in a greenhouse at the Merrimack County Jail. The project looked specifically at whitefly management on tomatoes. Emphasis was on biological control with timely release of *Encarsia formosa*, a tiny parasitic wasp that attacks whiteflies. Whitefly populations were monitored weekly with sticky traps placed throughout the greenhouse.

*Encarsia* releases were made at regular intervals and no pesticides were used during the growing season. The combination of careful monitoring and biological control were found to be effective in managing the whitefly population at a tolerable level.

In another example of IPM work, Merrimack County Cooperative Extension seeded endophytic grasses around a greenhouse at Pleasant View Gardens, Pittsfield, to reduce populations of insect pests that could migrate from turf through vents into the greenhouse. Endophytes are fungi found in certain grasses that produce chemicals that either kill or

repel several sucking insects. The project has shown significant reductions of insect populations.

A project similar to that in Merrimack County with *Encarsia formosa* is planned for the 1993 season in Sullivan County. Kathana Gardens, Newport, has agreed to work with Sullivan County Cooperative Extension in a local demonstration program looking at whitefly and/or thrips management through the release of parasites and predators. A spring project is planned beginning with the placement of sticky traps to monitor pests in the greenhouse. Research has

### NON-CHEMICAL PEST MANAGEMENT OPTIONS INCLUDE:

**CULTURAL CONTROLS**  
practices that disrupt the environment  
of the pest such as crop rotation, equipment  
sanitation, etc.

**BIOLOGICAL CONTROLS**  
using natural enemies to control pests like  
insect predators, species-specific diseases, etc.

**PHYSICAL BARRIERS**  
Materials like netting or plant covering that  
physically prevent pests from reaching the plants.

**PHEROMONES TRAPS**  
Pheromones are natural insect scents that can  
be used to confuse insects, lure them into traps,  
or away from crops. In addition to pheromone  
traps, color-cued traps are also effective.

**INDICATOR PLANTS, TRAP CROPS:**  
Indicator plants are plants that are more  
attractive to pests than the main crop.  
Placed among the main crop these are  
monitored for signs of infestations. Trap crops  
are similar to indicator plants, but they have  
been treated with a pesticide.

**PEST-RESISTANT VARIETIES:**  
Plant crop varieties that have shown resistance  
to damage by certain insects and diseases.

## IPM

*continued from previous page*

shown that these pests are attracted to certain colors. Yellow traps will be hung for whiteflies or blue for thrips. Predator releases will be made at recommended rates.

**A Plant Grower Twilight Meeting is scheduled for Kathan Gardens on April 29th. Hopefully, you'll be able to see traps in place and get more information about the project.**

Good IPM practices ensure the best use of your resources, reduce contamination of the environment and help to keep key chemicals available for pest control by delaying the development of pest resistance. IPM is promising for greenhouse and other crop production, but we don't have all the answers yet. Critical information that is still needed for many pests is the threshold level, or the level at which the crop begins to suffer and economic losses result.

A number of newly-emerging products show exciting promise for non-chemical greenhouse pest control. Examples include biological fungicides, disease and insect suppressing potting mixes, and new insect predators, to name a few. Continued research is needed to make IPM most effective in achieving the goals of reducing pesticide use while maintaining high quality. Education for growers as well as the general public is an integral part of the process. ■

*Gail D. McWilliam is Extension Educator, Agricultural Resources, for Sullivan County. She's at 24 Main Street, Newport, NH 03773 and can be reached at (603) 863-9200.*



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Color is what people want...

*from annuals and perennials to trees and shrubs.*

*Show color in your display gardens as well as in your prominent displays seen from the road and parking lot.*

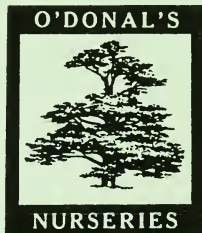
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*Tina Sautelle, principal of Sautelle Marketing Associates, consults with agricultural retail businesses on marketing and merchandising. For more information call her at (603) 659-8106.*

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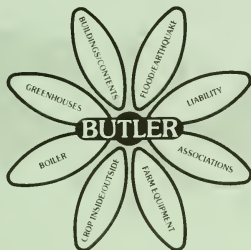
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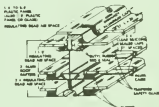
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# Spring Ledge Farm

## Plain Work Colors the Picture

The farm is on the divide between the Merrimack and Connecticut watersheds. The streams to the east of this ridge of hills flow into the Merrimack River; those on the west, into the Connecticut.

"My great-grandfather bought this land after the Civil War," John Clough said. "He and my grandfather and my father lived in the house across the street. We still have 43 of the original 75 acres. And I've bought 20, so we have a little over 60 now."

After earning a degree in Economics at Middlebury, John coached skiing for three years at Dartmouth, then taught English at Kimball Union in Meriden. But after five years of this, with the land in New London available, "a native son—with a wife and four daughters—returned home." "The local papers made a big thing of it."

"When Sue and I first moved back, we lived on the other side of town and ran a farm stand down the road from here. We also had a maple sugar operation on some land we own on the Wilnot/New London line. We no longer do this, but the spring in the ledge is there and that's where the farm gets its name.

"We started cautiously—not many people were doing this sort of thing then"—but it worked out—today Spring Ledge Farm's well-stocked stand is a New London landmark from Palm Sunday until Christmas. John's in charge of field crops and greenhouse vegetable production; Sue runs the other greenhouses and the stand. Emily, their youngest daughter, oversees the field crew. And for a couple months in mid-spring, between ski instruction and teaching at Outward Bound, Rebecca, their eldest,

comes home to work in the greenhouses. The other daughters help out too.

Zoning—they're Residential—keeps them from selling anything but plants and plant products, but John thinks this may be good: it makes growing quality produce the main focus.

### Greenhouses.

Right after their home was finished and the stand (about one-third its present size) operating in its present location, John built two 16x50 quonset-style houses. "The maple sugar bush was no longer in operation and I took the piping used to carry the sap from the trees to collection points and used it for the frames."

These houses, used to grow transplants for the vegetable gardens and bedding plants for the stand, were heated with wood. (Much of the Cloughs' land was wooded and they were in the process of clearing it for crop production.) Each house had two stoves—box or barrel. Barrel stoves—two barrels on top of each other, wood in the lower, heated air in the upper throwing out additional warmth—worked best, but "it was insane: you were either feeding the stoves or wondering how much smoke damage you'd find the next time you went out."

Over the next few years, they doubled the size of the houses and converted to oil heat.

### Vegetables.

Today there are seven poly quonsets—15,000 square feet of growing space. Four are used for flower and bedding plant production; three—(16x96, 27x145, and 25x149)—are used for vegetables, primarily tomatoes. The

largest is the newest—its first crop will be this year.

The topsoil inside two of the houses was removed and a foot of sand spread on the ground. The soil was then brought back and manure, compost, and a commercial compost mix from Mass Natural rotted into it.

The tomatoes are planted in this mix in slightly raised ground beds. An underground hot water system (100 F water circulating through a loop of plastic hose) keeps roots warm. Drip tube watering is used.

There's no sterilization, but the sand seems to help keep the soil disease-free. The one house without sand "has problems," so this year, it will be used to grow zucchini and cucumbers.

John's planting 'Buffalo,' a tomato he sees as "consistent"—with steady flowering and good-sized fruit. The first seeds are sown in early February and grow under lights in the Cloughs' cellar. After two weeks, they're transplanted into five-inch pots and put into a small greenhouse until late March, when one tomato house is planted. A second house is planted in early April. All the houses have roll-up sides and on warm days, the plants are open to the air and sun. The first picking is June first.

### Bedding Plants.

The benches are wire on wood frames (in one house, discarded rolling bench tops) set on cement blocks. ("A bench doesn't have to be elaborate to hold plants.")

Metromix 360 and four-pacs are used for all bedding plants. Three or four people work potting 30 hours a week at a "mobile potting area"—



## “Having a broad variety is important—people don’t want to have to make a second stop somewhere else.”

actually a bench moved from house to house. They’re busy into the summer.

Impatiens is a big best-seller because “so many homes here have mature landscape plantings that create a lot of shade” and multiflora petunias are popular, but the selection is varied—vegetables include 13 types of tomatoes; they grow scaevola, helichrysum, larkspur, heliotrope. They put up 500 eight-inch and 1000 ten-inch hangers.

One house holds 4000 4 1/2” pots of standard geraniums as well as 1500 seed geraniums (started from seed). Pink and salmon are New London best-sellers.

The 4000 perennials that arrive bare-root in mid-March are in another house. Sue says she “stays away from exotics because of so many recent bare winters.” She suggests the traditional—hostas, astilbe, day lilies.

Whenever possible, spraying is done—both in the fields and greenhouses—by John on Sundays when the crew’s not around. “Total release canisters” and Safer Soap seem to take care of most problems. When people ask—whether something’s grown organically or not is important here—the Cloughs describe their system as “limited IPM.”

In all houses, straight standard feed is mixed in a 50-gallon barrel. A vertical pipe is connected to a submersible pump inside each barrel; the feeding hose connects to the pipe. The idea comes from elsewhere, but John saw it as low-cost and workable.

There’s no heavy investment in complicated production devices, but it’s a trade-off—the investment is in time spent in plain potting, feeding, hoeing, picking, hauling....

The houses are empty by August. Potted perennials, covered with plastic and a layer of straw, will overwinter outside.

### Field-Grown Crops.

“The second year we began growing our own vegetables for the stand—corn, tomatoes, lots of lettuce....

The soil is basically clay. It’s better now—the fields have slowly improved with the help of a lot of tile drainage (1,800 feet in one field; 2,500 in another) and yearly additions of manure and compost. Crops are rotated; a side-dressing of nitrogen is usually given once to each crop; there’s an overhead sprinkler irrigation system.

By the end of April, peas and three acres of early corn are in the ground. The corn is covered on cold nights with strips of plastic—a lot of work, but “we gain a week and harvest corn around July 20. Lettuce—five types—is planted once a week from the first of May until the first of August. There are two plantings of carrots (baby and regular), cucumbers, beets, broccoli, zucchini...we grow five or six kinds of corn. We have raspberries, 3/4 of an acre of pick-your-own strawberries—diversity is key.

“We grow the basics and rely on two local growers for gourmet items.

“We also grow a limited number of herbs—basil, dill, parsley—and have a small—and very popular—cutting garden. We rely on the Boston Market for the rest of what we sell.”

Cut flowers are important—there are two plantings, as well as pick-your-own (snapdragons, cosmos, statice, zinnias...) and display garden.

John has one full-time employee and hires eight or nine college students for the summer. The crew members start around 7:30 and work until noon. They pick, clean, and bunch in one operation and bring the produce ready-to-sell to the stand. (“Sweet corn’s there by nine.”) The work isn’t complicated, but there’s a lot of it.

### The Farm Stand.

Sue runs the stand with an emphasis on presentation. Color is important—“we try to keep it like a picture.”

The stand crew consists of “three wonderful, almost full-time gals who have worked here a long time, enjoy what they do, and know what they’re

talking about...most people know pretty much what they want, but when they don’t—when a man, for example, buys a hanging plant for his wife—good advice is important.” Five college students work during the busy months of summer.

The Cloughs harvest through September. They grow as much as they can, but what they don’t grow, they buy in. They buy from other local producers; a Boston supplier delivers three times a week from late June through October. They also buy-in house plants and bulbs, locally-made maple syrup, jams and jellies. “Having a broad variety is important—people don’t want to have to make a second stop somewhere else.”

What’s locally grown is marked as such; this fact is important to a lot of customers who associate it with freshness and quality. “Locally grown” sells best. But whatever doesn’t sell after two days is fed to their sheep and four beef cattle. (“Kids love to visit the barn.”)

“We sell mums in the fall—we pot up 1500 in July. We could do more—a lot more. Last year we bought in an additional 1200. Asters haven’t caught on up here, probably because of mildew problems near the lakes.”

“In fall, we stock just the traditional late-fall produce—pumpkins, squash, lots of apples—as well as our own lettuce and cold crops.” November is quiet—the crew remaining makes and sells dried flower arrangements.

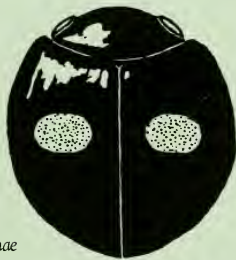
“Quality and variety do our advertising for us,” but Sue does use *The Kearsarge Shopper*, a local paper that’s “really nothing but ads, but is something everyone reads.” She might advertise specials, but “not a lot of numbers. People can come to find out the details.”

This carefully-detailed picture is well worth a visit. (B.P.) ➤

*Spring Ledge Farm is on Main Street in New London. John and Sue can be reached at (603) 526-6253 or 526-4781.*



# A NEW BIOLOGICAL CONTROL FOR EUONYMUS SCALE



*Chilocorus kuwanae*

**e**uonymus plants are versatile and attractive ornamentals that grow throughout much of New Hampshire. They rank as 12<sup>th</sup> among the most commonly used plants in United States landscaping and they come in many forms, including bushes, climbing vines, groundcovers, and small trees. The common evergreen types retain their leaves, but the popular burning-bush, or winged-euonymus, is deciduous. The evergreen varieties of euonymus are susceptible to a minute insect pest known as the Euonymus scale. The mature scale insect itself

looks like a minute white speck, but heavy infestations result in whitened bark and discolored leaves. Plants heavily infested will eventually die, unless insecticides (dormant oils and summer sprays) are applied.

Euonymus scale is a pest of foreign origin, having probably arrived in this country along with the many varieties of euonymus which were imported to the United States from Asia. Unfortunately, most of the scale's natural enemies were left behind, and without its natural biological controls here in North America, the scale has become a serious problem.

A new effort is being made this year through the Entomology Department of the University of New Hampshire to introduce a natural predator to control Euonymus Scale in New Hampshire. The friendly predator, an Asian lady beetle, *Chilocorus kuwanae*, has an inordinate fondness for eating euonymus scale and has been shown to be a viable biological control of the scale. Despite recent release efforts involving *Chilocorus kuwanae* in the Northeast by the United States Department of Agriculture (USDA), this species of lady beetle has not yet become established in New Hampshire. However, this lady beetle has already been a great triumph in Massachusetts, where much of the success can be attributed to the biological program of Dr. Roy van Driesche, Entomology Department, University of Massachusetts. Dr. van Driesche has kindly supplied enough lady beetles to UNH to start a small colony of the lady beetles. It is anticipated that the colony will grow in numbers, so that this summer it will be possible to make several releases of lady beetles on the UNH campus in Durham, where there is presently a severe infestation of the scale. Hopefully this new project, supported in part by USDA, will be a success and facilitate the introduction of an effective biological control of Euonymus scale in New Hampshire.

Anyone in New Hampshire who would like to obtain a small batch of lady beetles to control Euonymus Scale must contact the author and be willing make a trip to Durham this summer to pick up the lady beetles. (Also, you will need to bring along a container, like a large peanut butter jar, and a cool ice chest to transport the lady beetles safely.) ♦

*John is Survey Entomologist in the Entomology Department at the University of New Hampshire, Durham, NH 03824. Phone: (603) 862-1737.*

*Written and Illustrated by  
Dr. John Weaver*



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# EPA's

## Worker Protection Standard: Respirators and "-Cides"

### PART TWO

Leo Traverse

*(EPA is requiring 8 specified areas of responsibility for pesticide users. This is Part 2 of an article that deals with only one part (air-purifying respirators) of one section of the Personal Protective Equipment (PPE) requirement for workers.)*

#### CHOOSING A RESPIRATOR (continued)

##### C). Toxic Categories

The toxicity category of the pesticide plays a very important role in the choice, duration of use, and decontamination (maintenance) of your Personal Protective Equipment (PPE) and—most importantly—in your own health. EPA<sup>1</sup> has established four Toxicity Categories: I, II, III, and IV. Category I is most acutely toxic; category II is moderately toxic. Different PPE is required for different categories. Furthermore, the chemical/physical state of the material determines the type of PPE you'd choose. For example, a Category I material that has eye irritation potential as well as inhalation toxicity would require both a respirator and some sort of eye protection.

The toxicity category of a pesticide also determines your re-entry interval (REI) after use of the "-cide." For example, if you use an organophosphate pesticide (EPA Toxicity Category level I), a 48-72 hour re-entry interval is imposed. Category II pesticides require a 12-24 hour REI. This restriction allows re-entry only with PPE before the REI expires (exemptions for no-contact and short-term entry are allowed under the worker protection standard).<sup>2</sup> REI's for greenhouses can be greatly reduced under EPA guidelines if ventilation is used.<sup>3</sup>

##### D). Levels of Contaminants

The levels of contamination **MUST BE KNOWN** in order to wear an Air Purifying Respirator. You must invest in small air monitoring devices or have a professional do the monitoring for you. (Most reputable insurance companies do this at no charge.)

##### WHY must the levels be known?

Because air purifying respirators have Maximum Use Limits (MUL). Suppose you're using a pesticide that has a safe exposure level of 10 ppm and you are also wearing a full-face respirator with a protection factor of 100. At 2000 ppm in the air, you could have 20 ppm in the face piece—

which is twice the safe exposure level. Many cartridges limit the organic vapor level exposure to 1,000 ppm. Furthermore, if the levels monitored are above the OSHA IDLH (Immediately Dangerous to Life or Health) levels, an APR cannot be worn. Once you establish benchmarks, monitoring should be done yearly and/or when changes are made.

##### E). Oxygen Level

Oxygen must be present between 19.5-22% to use APR. Less than 19.5% leaves the human body without enough fuel to function; over 22% and we have an explosion hazard. Yes, the human environment is very delicate indeed!

##### F). Fit-testing Respirators

Once a certified respirator is chosen (e.g., a NIOSH/MSHA certified respirator for gases, particulates, vapors, mists, fumes, or aerosols), you're then required to properly fit the respirator to the person's face. Respirators are built in sizes: small, medium, and large. Some manufacturers mark the size on the facepiece; others use a color code. The size of the respirator you'll wear should be determined by fit-testing under the guidance of a Certified Environmental Trainer (CET) or Industrial Hygienist (CIH) or Safety Professional (CSP).

##### G). Training.

Training should be supplied by a person knowledgeable in safety, pesticides, and respirator use. EPA has stipulated that trainers be certified. Recently a fine of \$5,000 was part of an OSHA citation against a fertilizer manufacturer for using trainers without proper credentials or experience. (For a copy of this citation, call Leo Traverse at 603-434-2051.)

#### CARTRIDGE/RESPIRATOR APPROVAL CODES

EPA is requiring the manufacturer of the pesticide to specify the type of respirator and the cartridge. This should include its Tested/Certification (TC) number. For example, a pesticide label might require that a NIOSH/MSHA-approved respirator with TC-23C-763 cartridges be used for normal application procedures. The TC 23C-763 cartridge is a combination cartridge that removes organic vapors and has HEPA (High-efficiency Particulate Air) pre-filter. This cartridge (Wilson respirator series) would also have a two color (yellow, purple) code.

(For information on color codes, again—contact Leo Traverse at 434-2051.)

### Respirator Programs

Requirements of a Minimal Acceptable Respirator Program.

- (1). Written standard operating procedures governing the selection and use of respirators shall be established.
- (2). Respirators shall be selected on the basis of hazards to which the worker is exposed.
- (3). The user shall be trained in the proper use of respirators and informed about their limitations.
- (4). Respirators shall be thoroughly stored and disinfected. Those used by more than one person shall be thoroughly cleaned and disinfected after each use.
- (5). Respirators shall be stored in a convenient, clean, and sanitary location.
- (6). Respirators used routinely shall be inspected during cleaning. Worn or deteriorated parts shall be replaced. Respirators for emergency use (such as self-contained devices) shall be thoroughly inspected at least once a month and after each use.
- (7). Appropriate surveillance of work area conditions and the degree of employee exposure or stress shall be maintained.
- (8). There shall be regular inspection and evaluation to determine the effectiveness of the program.

(9). Person shall not be assigned to tasks requiring the use of respirators unless it has been established that they are physically able to perform the work and use the equipment. The local physician shall determine what health and physical conditions are pertinent. The respirator user's medical status should be reviewed periodically (annually is suggested).

(10). Approved or accepted respirators shall be used when they are available. The respirator furnished shall provide adequate protection against the particular hazard for which it was designed in accordance with the standards established by competent authorities. Although respirators listed by the U.S. Department of Agriculture continue to be acceptable for protection of specified pesticides, the agency is now responsible for testing and approving pesticide respirators. So there may be changes down the road. ■

*Leo Traverse is a certified Environmental trainer and president of Hazmateam, Inc. Hazmateam is located in Hampstead, NH, and provides Personal Protection equipment (PPE) training, respiratory protection plans, safety plans, respirator training, and monitoring. For more information, call Leo at (603) 434-2051.)*

### FOOTNOTES

- (1). EPA contracted Development Planning and Resource Associates (DPRA) to analyze FIFRA re-entry levels.
- (2). FR VOL. 57, No 163/friday August 21, 1992/rules and regulations page 38154
- (3). FR VOL. 57, No 163/friday August 21, 1992/rules and regulations page 38153



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April & May 1993  
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## BOARD HIGHLIGHTS

Andrea, Ben, Bruce, Bob, Chris, Dick, Henry, and Roger met at Pleasant View on February 11.

The meeting began with a presentation by Cynthia Billings of Billings Associates, an promotional organization that works with non-profit organizations. She talked about finding corporate sponsors for major speakers at NHPGA meetings, designing promotional brochures, and finding advertisers for *The Plantsman*. The Board will keep her offers in mind.

Chris reported that there are 219 paying members. The mailing list includes these, along with 16 cooperative extension people, 15 various New England associations, ten vocational schools, six life members, and a few people in miscellaneous categories.

Henry reported on the New England Greenhouse Conference. On January 19, committees were set up to begin planning for the 1994 conference, which will again be held in Sturbridge; however the committee will be looking for a larger place in which to hold the 1996 event.

The preregistration fee for the Summer Meeting will be \$25.00. Registration that day will be \$30.00. There will be a featured speaker, but maybe on a topic of more general interest. Ben suggested that this summer meeting could be more family oriented—a day for spouses and children as well. The board liked the idea, and this theme may be built upon. For example, although it wasn't established at this meeting, there would be a reduced registration fee for children.

A pesticide recertification meeting similar to the one held last November will be held again this year. It will be on October 20, probably in the Manchester area.

Planning for 1994's twilight meetings will begin with each board member finding one prospective location.

The membership voted clearly against changing the logo. Some board members were disappointed, but this vote effectively ends discussion on the matter.

Henry said that NHPGA was the only New England horticulture organization not sponsoring this year's 'New England Growers' show in Boston and suggested that we become a sponsor of next year's show. Bob will look into the matter.

Dick suggested that the winter meeting date be changed to March

and that a social event (a dinner, maybe with music or entertainment) be offered to members and spouses in November, before the beginning of the Christmas season. The idea was discussed, but no action was taken.

### March 4:

Ben, Bob, Chris, Henry, Peter, and Roger met at Pleasant View.

There are eight new members, but 54 non-paying old. Those that haven't paid by April will be contacted by the Board.

Bob suggested designing a promotional sheet to be used at various trade shows. A list of NHPGA's selling points will be compiled for discussion at the April meeting.

There will be a twilight meeting at Carpenter's Olde English Greenhouse in Newmarket on September 22 at 5:30. Along with the tour, there will be a pesticide recertification credit offered. Henry Huntington is working with Nancy Adams on arranging this part of the evening.

We have one twilight meeting scheduled for 1994.

We have one speaker lined up for the pesticide recertification meeting in October.

The Summer Meeting may be lighter, more social. There will be tours, a featured speaker, and a strong trade show in the morning, lunch (a children's price will be \$6.50) and the auction in the afternoon, then an opportunity to visit some of the highlights of the seacoast. The Board will compile a list of the best of these—and make a map; Bob will ask a couple of the area's seafood restaurants if they would be willing to offer discounts to NHPGA members. (We would give out redeemable coupons at the meeting.) Pesticide credits can be gathered at the meetings in September and October.

After a long discussion, it was decided to continue to hold a separate winter meeting and to concentrate on building a strong educational format. A tentative date is January 12, 1994; tentative location is the Margate in Laconia.

Bob brought up a proposal from a group called "The Insurance Exchange" to participate in a feasibility study on NHPGA members forming a self-insurance group or "trust" for workers' compensation. Bob gave the Board copies of the information he was given and he'll phone them for comments after they've had a chance to read them.

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## TWILIGHT MEETING

### **Kathan Gardens, Newport April 29**

The next NHPGA Twilight Meeting will be in the west-central part of the state at Kathan Gardens in Newport on Thursday, April 29 at 5:30 pm.

The first crop here at Kathan Gardens was grown by Ollie and Anne Kathan in an unused chicken coop in the spring of 1956. The business has grown a lot since then and is now one of the major greenhouse/garden centers in that region.

But it's still a family business—Dennis (Ollie and Anne's son) runs it now. He'll be giving a tour, talking about changes that have been made over the years, discussing Kathan's being both a wholesale and a retail business and how he's made these two aspects work together; he'll discuss public relations and marketing techniques (including the quarterly newsletter he writes himself) and tell what seems to work best for him. There's a soil-mixing and steaming system to see (Dennis believes in loam), as well as the wide range of annuals and perennials (some new, some old-fashioned) offered.

Kathan's grows a high-quality product and around the end of April, the display areas should be in full flower. It's a comfortable place as well, and after the tour, refreshments will be served and there'll be a chance to ask questions and talk with friends and neighbors.

From the south, take Exit 9 (Rte 103, Bradford) from 89N; go right. In the center of Newport, bear left (Main Street). Turn right at the traffic light. Then, after crossing a bridge, bear right (up a hill). For more information, call Dennis at (603) 863-1089. See you there.

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